

Art Unit: 1796

**DETAILED ACTION**

**SUPPLEMENTAL ACTION**

1. The following supplemental action is being sent out with the claims renumbered in accordance with MPEP § 608.01(j) (see also attached printer rush form). Such changes are shown in paragraph 4 below.
2. This action supersedes the preceding action mailed on **05/27/2010**. The time period for response is restarted from the mail date of the present action.

**EXAMINER'S AMENDMENT**

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

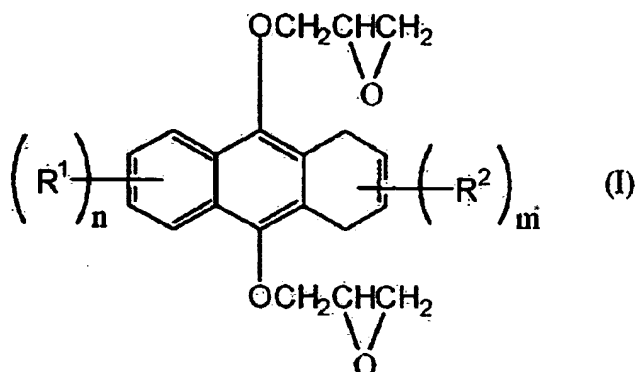
Authorization for this examiner's amendment was given in a telephone interview with Mr. W. Scott Ashton on May 20, 2010.

The application has been amended as follows:

**Claim 1 is amended as follows:**

1. (Currently Amended) A sealant epoxy-resin molding material, comprising an epoxy resin (A) and a hardening agent (B), wherein the epoxy resin (A) contains a compound represented by the following General Formula (I):

Art Unit: 1796



wherein in General formula (I),  $R^1$  represents a group selected from substituted or unsubstituted hydrocarbon groups having 1 to 12 carbon atoms and substituted or unsubstituted alkoxy groups having 1 to 12 carbon atoms, and the groups  $R^1$  may be the same as[[,]] or different from[[,]] each other;

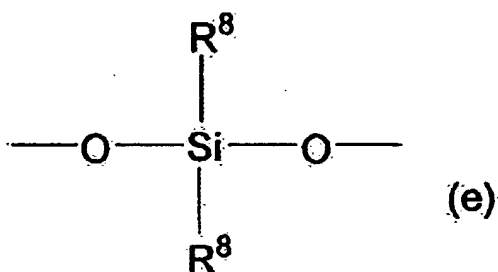
$n$  is an integer of 0 to 4;

$R^2$  represents a group selected from substituted or unsubstituted hydrocarbon groups having 1 to 12 carbon atoms and substituted or unsubstituted alkoxy groups having 1 to 12 carbon atoms, and the groups  $R^2$  may be the same as[[,]] or different from[[,]] each other; and

$m$  is an integer of 0 to 6.

**Claim 14 is amended as follows:**

14. (Currently Amended) The sealant epoxy-resin molding material according to claim 27, wherein the silicon-containing polymer (F) has the following bond (e) additionally:



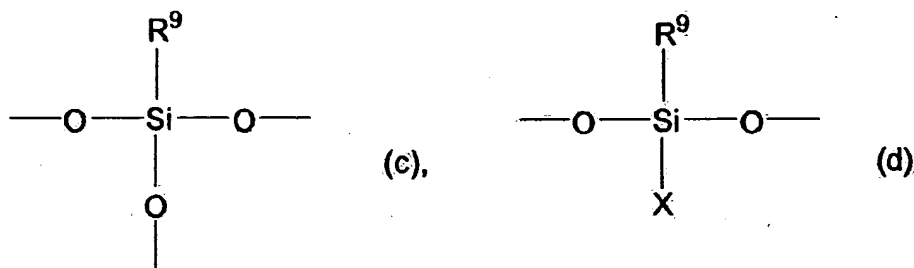
wherein  $R^8$  represents a group selected from substituted or unsubstituted monovalent hydrocarbon groups having 1 to 12 carbon atoms; and

the groups  $R^8$  in the silicon-containing polymer may be the same[[,]] as or different from [[,]] each other.

Art Unit: 1796

**Claim 21 is amended as follows:**

21. (Currently Amended) The sealant epoxy-resin molding material according to claim 20, further comprising a silicon-containing polymer (F) having the following bonds (c) and (d),



a terminal selected from  $\text{R}^9$ , a hydroxyl group and alkoxy groups, and an epoxy equivalence of 500 to 4,000,

wherein  $\text{R}^9$  represents a group selected from substituted or unsubstituted monovalent hydrocarbon groups having 1 to 12 carbon atoms;

the groups  $\text{R}^9$  in the silicon-containing polymer may be the same as[[,]] or different from[[,]] each other; and

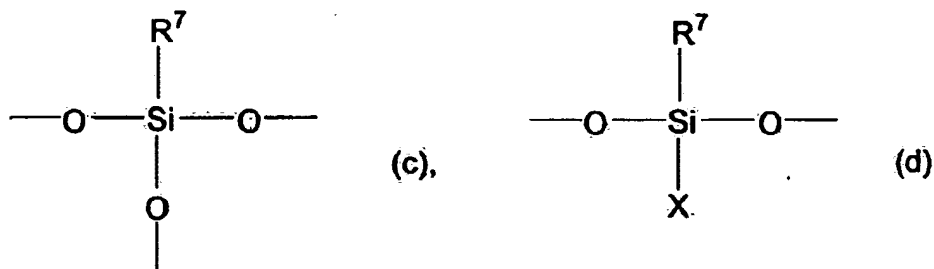
X represents an epoxy group-containing monovalent organic group.

**Claim 27 is amended as follows:**

27. (Currently Amended) A sealant epoxy-resin molding material, comprising:  
an epoxy resin (A);

a hardening agent (B); and

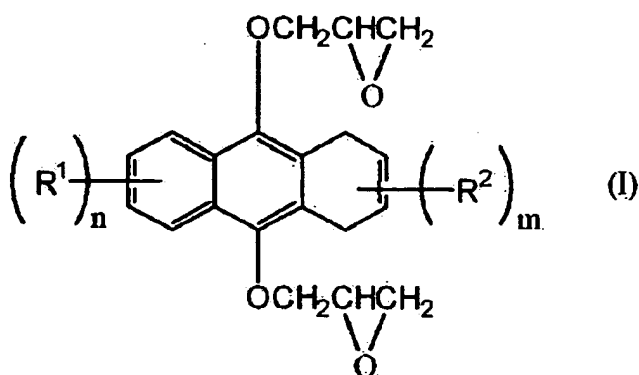
a silicon-containing polymer (F), wherein the silicon-containing polymer (F) has the following bonds (c) and (d),



Art Unit: 1796

a terminal selected from  $R^7$ , a hydroxyl group and alkoxy groups, and an epoxy equivalence of 500 to 4,000, wherein  $R^7$  represents a group selected from substituted or unsubstituted monovalent hydrocarbon groups having 1 to 12 carbon atoms; the groups  $R^7$  in the silicon-containing polymer may be the same as[[,]] or different from[[,]] each other; and X represents an epoxy group-containing monovalent organic group;

wherein the epoxy resin (A) contains a compound represented by the following General Formula (I),



wherein in General formula (I),  $R^1$  represents a group selected from substituted or unsubstituted hydrocarbon groups having 1 to 12 carbon atoms and substituted or unsubstituted alkoxy groups having 1 to 12 carbon atoms, and the groups  $R^1$  may be the same as[[,]] or different from[[,]] each other;

$n$  is an integer of 0 to 4;

$R^2$  represents a group selected from substituted or unsubstituted hydrocarbon groups having 1 to 12 carbon atoms and substituted or unsubstituted alkoxy groups having 1 to 12 carbon atoms, and the groups  $R^2$  may be the same as[[,]] or different from[[,]] each other; and

$m$  is an integer of 0 to 6.

#### 4. The claims are renumbered as follows:

Claim 1 becomes claim 1.

Claim 2 becomes claim 2, which depends on claim 1; reads "The sealant epoxy-resin molding material according to Claim 1."

Claim 3 becomes claim 3, which depends on claim 1; reads "The sealant epoxy-resin molding material according to Claim 1."

Art Unit: 1796

Claim 4 becomes claim 4, which depends on claim 3; reads "The sealant epoxy-resin molding material according to Claim 3."

Claim 5 becomes claim 5, which depends on claim 3; reads "The sealant epoxy-resin molding material according to Claim 3."

Claim 6 becomes claim 6, which depends on claim 1; reads "The sealant epoxy-resin molding material according to Claim 1."

Claim 7 becomes claim 7, which depends on claim 6; reads "The sealant epoxy-resin molding material according to Claim 6."

Claim 8 becomes claim 8, which depends on claim 6; reads "The sealant epoxy-resin molding material according to Claim 6."

Claim 9 becomes claim 9, which depends on claim 1; reads "The sealant epoxy-resin molding material according to Claim 1."

Claim 10 becomes claim 10, which depends on claim 9; reads "The sealant epoxy-resin molding material according to Claim 9."

Claim 11 becomes claim 11, which depends on claim 10; reads "The sealant epoxy-resin molding material according to Claim 10."

Claim 12 becomes claim 12, which depends on claim 1; reads "The sealant epoxy-resin molding material according to Claim 1."

Claim 27 becomes claim 13.

Claim 14 becomes claim 14, which depends on claim 13; reads "The sealant epoxy-resin molding material according to Claim 13."

Claim 15 becomes claim 15, which depends on claim 13; reads "The sealant epoxy-resin molding material according to Claim 13."

Art Unit: 1796

Claim 16 becomes claim 16, which depends on claim 13; reads "The sealant epoxy-resin molding material according to Claim 13."

Claim 17 becomes claim 17, which depends on claim 13; reads "The sealant epoxy-resin molding material according to Claim 13."

Claim 18 becomes claim 18, which depends on claim 1; reads "The sealant epoxy-resin molding material according to Claim 1."

Claim 19 becomes claim 19, which depends on claim 13; reads "An electronic component device, comprising an element sealed with the sealant epoxy-resin molding material according to Claim 13."

Claim 20 becomes claim 20, which depends on claim 6; reads "The sealant epoxy-resin molding material according to Claim 6."

Claim 21 becomes claim 21, which depends on claim 20; reads "The sealant epoxy-resin molding material according to Claim 20."

Claim 22 becomes claim 22, which depends on claim 3; reads "The sealant epoxy-resin molding material according to Claim 3."

Claim 23 becomes claim 23, which depends on claim 3; reads "The sealant epoxy-resin molding material according to Claim 3."

Claim 24 becomes claim 24, which depends on claim 3; reads "The sealant epoxy-resin molding material according to Claim 3."

Claim 25 becomes claim 25, which depends on claim 3; reads "The sealant epoxy-resin molding material according to Claim 3."

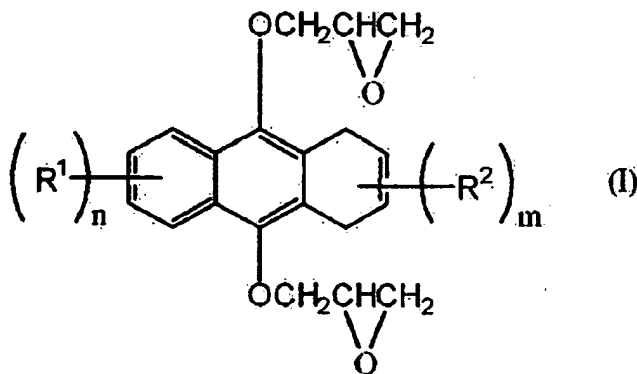
Claim 26 becomes claim 26, which depends on claim 3; reads "The sealant epoxy-resin molding material according to Claim 3."

**Reasons for Allowance**

5. The present claims are allowable over the "closest" prior arts, namely Ikezawa et al. (US 2003/0201548) and Nakamura et al. (JP 05-283560).

6. The broadest claim, independent claim 1, recites as follows:

1. (Currently Amended) A sealant epoxy-resin molding material, comprising an epoxy resin (A) and a hardening agent (B), wherein the epoxy resin (A) contains a compound represented by the following General Formula (I):



wherein in General formula (I),  $\text{R}^1$  represents a group selected from substituted or unsubstituted hydrocarbon groups having 1 to 12 carbon atoms and substituted or unsubstituted alkoxyl groups having 1 to 12 carbon atoms, and the groups  $\text{R}^1$  may be the same as[[,]] or different from[[,]] each other;

$n$  is an integer of 0 to 4;

$\text{R}^2$  represents a group selected from substituted or unsubstituted hydrocarbon groups having 1 to 12 carbon atoms and substituted or unsubstituted alkoxy groups having 1 to 12 carbon atoms, and the groups  $\text{R}^2$  may be the same as[[,]] or different from[[,]] each other; and

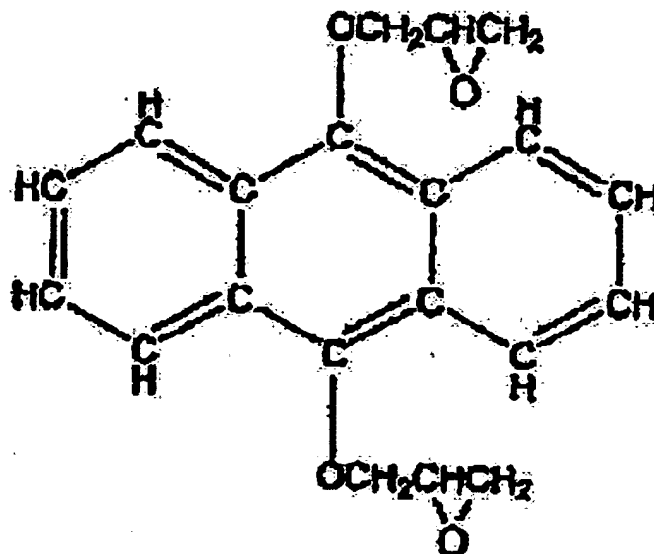
$m$  is an integer of 0 to 6.

None of the references cited individually or in combination teaches or would have suggested epoxy resin compound defined by the claimed structural formula of a sealant epoxy-resin molding material containing a hardening agent.

**Ikezawa et al.** disclose an encapsulating epoxy resin molding material useful for a semiconductor device containing a curing (hardening) agent (Paragraphs 33-34).

Although **Ikezawa et al.** mention using an epoxy resin, they fail to identify the epoxy resin compound defined by the claimed structural formula.

**Nakamura et al.**, relied upon as the secondary reference in the previous action, fail to remedy this deficiency. **Nakamura et al.** teach a composition useful for a semiconductor device containing an epoxy resin having the structural formula (Paragraph 43, see Formula 9),





Art Unit: 1796

unexpectedly imparts superior spiral flow and warping properties relating to the epoxy resin compound having the structural formula taught by **Nakamura et al.**

Thus, the collective teachings of **Ikezawa et al.** and **Nakamura et al.** would not have rendered the claimed sealant epoxy resin molding material have an epoxy resin defined by the claimed structural formula obvious to one of ordinary skill in the art.

Furthermore, the obviousness-type double patenting rejections of record are also overcome for the same reasons set forth above since they rely on the same teachings in **Nakamura et al.**

7. Additional pertinent reference (**Hayakawa et al.**, US 7,307,128) was uncovered upon further search. Although **Hayakawa et al.** disclose an epoxy resin compound having the claimed structural formula (Col. 13, lines 1-15 and Col. 14, lines 1-15), its filing date (August 27, 2004) is subsequent to the foreign priority date (March 3, 2004) of the instant application. The applicants are entitled to the benefit of the foreign priority date of the instant application since they have perfected their foreign priority claim consistent with the requirements of 35 U.S.C. 119(a)-(d). See also the attached certified copy of the English Translation of JP Document (JP 2004-059106).

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should

Art Unit: 1796

preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hannah Pak whose telephone number is (571) 270-5456. The examiner can normally be reached on Monday - alternating Fridays (7:30 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hannah Pak  
Examiner  
Art Unit 1796

Art Unit: 1796

/HP/

/Vasu Jagannathan/

Supervisory Patent Examiner, Art Unit 1796